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XX. *Observations on the Eclipse of the Sun,*
April 1, 1764, at Brompton-Park : By
Mr. Samuel Dunn.

Read April 5, 1764. **P**ART of the instruments which I was provided with for observing this eclipse were, a reflecting telescope 21 inches focus with a micrometer, a refracting telescope 6 feet in length with only two glasses, a double convex object glass, and a double convex eye glass. Two pendulum clocks, and a stop watch to seconds of time. I had taken as much care as possible to adjust the clocks to mean solar time some days before the eclipse, and from several altitudes of the Sun, taken March 30th in the morning and afternoon, concluded the clocks were then exactly with the Sun to a second of time.

March 31st was a cloudy day, and not the least hope of seeing the Sun the day following, 'till near midnight, when it cleared up, and the stars appeared.

April 1st, the Sun rose a little obscured by vapours and thin clouds, which he became more free from as he advanced in altitude.

At 6^h 56' per clock, I took the altitude of the Sun's centre 2° 25' 20'', from which observation the clock was 6 seconds of time before the Sun.

At 6^h 59' per clock, I took the altitude of the Sun's centre 12° 50' 45'', from which observation the clock was 4 seconds of time before the Sun.

At

At 7^h 5' per clock I took, the altitude of the Sun's centre $13^{\circ} 49' 55''$, from which observation the clock was 4 seconds of time before the Sun. And the same day in the afternoon,

At 4^h 23 per clock, I took the altitude of the Sun's centre $18^{\circ} 49' 40''$ from which observation the clock was 5 seconds of time before the Sun.

These and other observations confirmed that the clock was 5 seconds of time before the Sun at the beginning of the eclipse.

At 6^h 45' per clock, I set my watch exactly by the clocks; captain Bentincke and captain Holland were present with curious watches.

From 8^h 45' per clock, to the beginning of the eclipse, I continued observing with the reflecting telescope, and saw the limb of the Sun through the telescope and thin vapours, without any dark glass, as clearly as it could be seen by any helioscope whatsoever.

Captain Bentincke pronounced the seconds of time as they were fulfilled by the watch, and as the minutes of time were fulfilled they were written down.

At 9^h 4' 29'' per watch, I thought I saw a little dull tremulous vibration obtrude itself on the limb of the Sun; and,

At 9^h 4' 30' it became a little more sensible; and,

At 9^h 4' 31'' a little more sensible; but it was

At 9^h 4' 32'' per watch before I was certain the Sun's limb was touched by the limb of the Moon; And,

At 9^h 4' 33 I plainly saw, through this telescope, and the thin vapours of the atmosphere, the least visible dent, perfectly well defined in the Sun's limb.

I instantly compared the watch with the clocks, and found the watch had lost 4 seconds of time of the clocks, a property which it had before had, when taken out of the pocket and exposed to the cold air.

The watch was therefore but one second of time before the Sun at the time of observation, for Brompton park, which is exactly one mile from Hyde-park-corner, in the way towards Kensington.

Clouds prevented the end of the eclipse from being observed; at 12^h 3' the Sun appeared, and the eclipse was ended, and from the observations which I made, have drawn a map of the phases and ending, which is herewith, TAB. XII.

London, April 4, 1764.

Samuel Dunn.

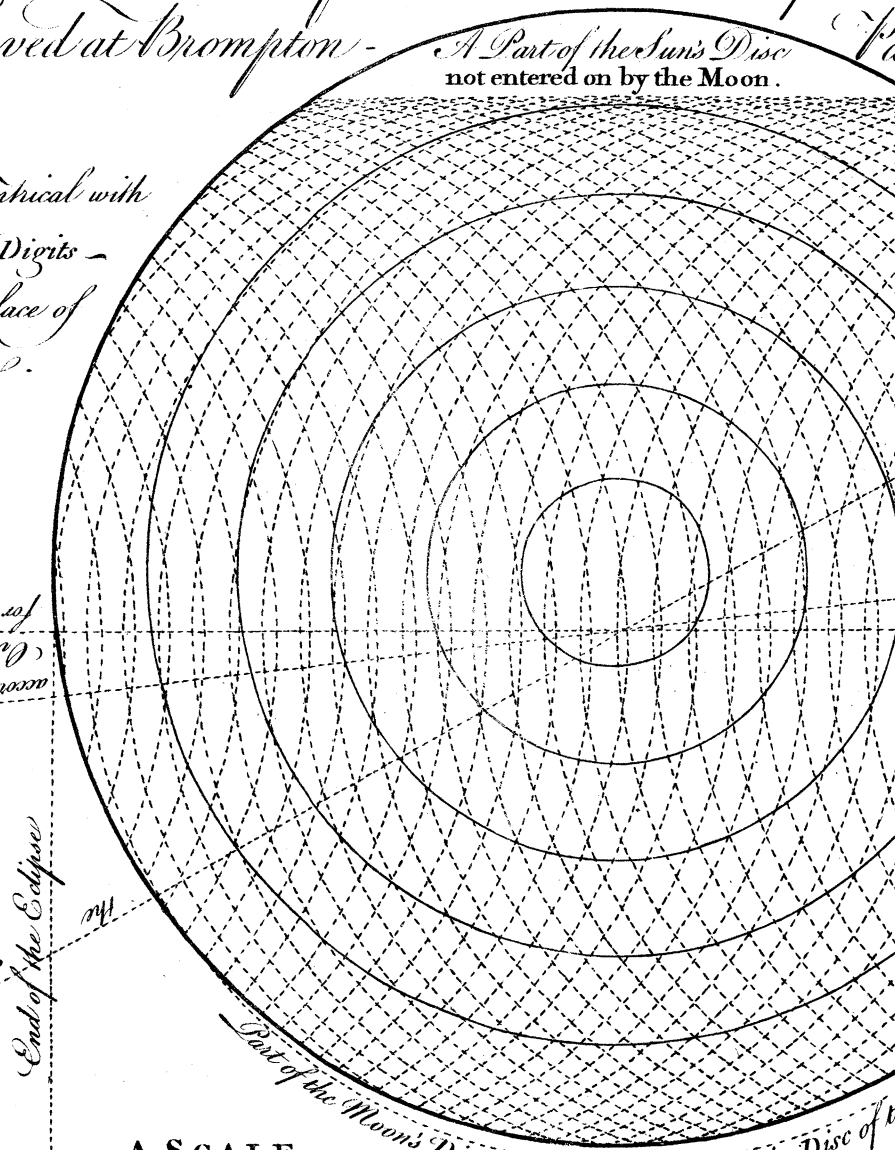
A Delineation of the **ECLIPSE** of the as Observed at Brompton -

A Part of the Sun's Disc
not entered on by the Moon.

The Circles concentrical with
the Sun, shew the Digits -
Eclipsed, at the Place of
Observation.

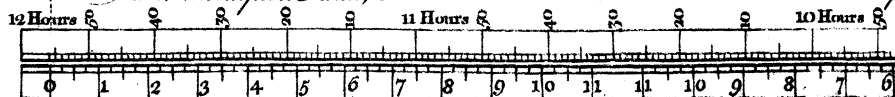
according to the Order of the Signs.
Over the Disc of the SUN.
for each Minute of a Degree.

Equator -
End of the Eclipse



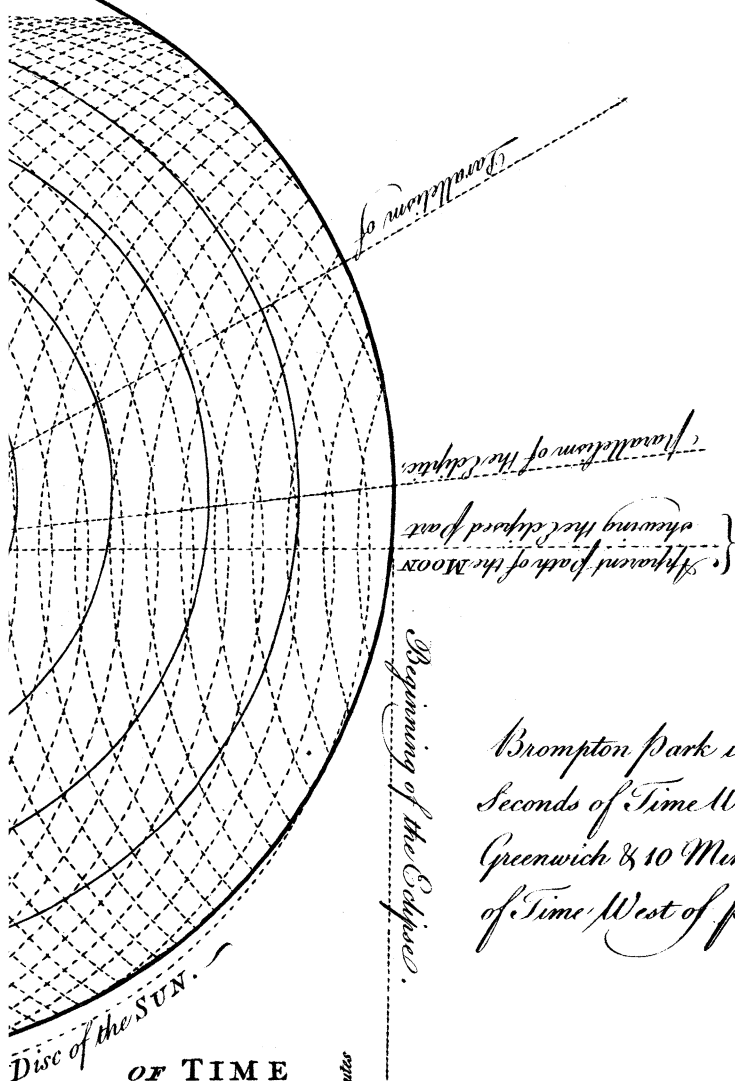
A SCALE

For Brompton Park -

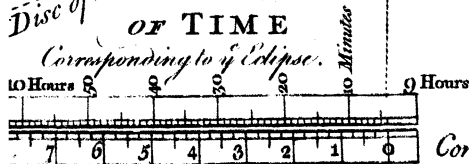


A SCALE of Digits Eclipsed.

of the SUN April 1st 1764; Park, By Samuel Dunn.



Brompton Park is 43 -
Seconds of Time West of
Greenwich & 10 Minutes -
of Time West of Paris.



Corresponding to the Time &c.

Observations on the Eclipse of the Moon, 17th March 1764, made at Brompton-Park, near London, 10' of Time West of Paris and 43'' of Time West of the Royal Observatory at Greenwich: By Mr. Samuel Dunn.

Solar time.

- At 10 39 30 { the eclipse begins in that part of the Moon's limb
between Tycho and Grimaldus.
- 10 40 30 Skikardus toucheth the shade.
- 10 45 0 { the lower part of Mare Humorum is touched by
the shade.
- 10 51 10 Tycho and Grimaldus touch the shade.
- 10 53 0 { Grimaldus exactly covered and Tycho a little
immersed in the shade.
- 11 7 15 Galileus toucheth the shade.
- 11 11 45 Keplar and Lansbergius touch the shade.
- 11 18 10 { Copernicus toucheth the shade, and the lower
part of Mare Nectaris is a little immersed.
- 11 28 15 Ariadeus toucheth the shade, in Mare Tranquillitatis
- 11 36 30 Julius Cesar toucheth the shade.
- 11 41 0 { Manilius toucheth the shade, and Plinius not
yet immersed.
- 11 47 10 Mare Crisium it's lower part toucheth the shade.
- 12 15 40 Grimaldus is quite immersed.
- 12 17 45 Keplar emerges from the shade.
- 12 20 30 Copernicus emerges,
- 12 34 30 { the line of the shade passeth between Julius Cesar
and Manilius, and at the same time a little of
Mare Humorum is emerged.
- 12 46 25 { Mare Crisium begins to emerge, and at the same
time the line of the shade passeth a little below
Plinius and Vitruvius in Mare Tranquillitatis.
- 12 56 50 Tycho emerges.
- 12 57 20 { the centre of Tycho is a little emerged, and the
line of the shade passeth through Mare Crisium
two thirds from the upper end.
- 13 1 50 Mare Crisium is quite emerged.
- 13 5 45 Theophilus in Mare Nectaris emerges.
- 13 22 10 { the eclipse ends in that part of the Moon's limb
cut by a line drawn through the Moon's centre
and the lower end of Mare Nectaris.

Note, In the above observations, where it is said that any spot touched the shade, it is meant, that that spot was centrally bisected by the line of the shade at that time.